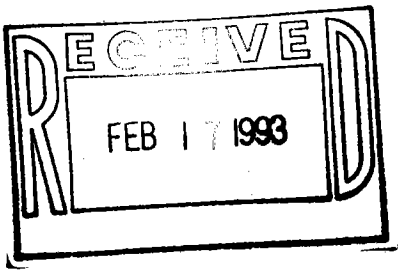
SOIL AND GROUNDWATER QUALITY ASSESSMENT REPORT



PERFORMED BY

ENGINEERING AND ENVIRONMENTAL SERVICES
419 SECOND STREET, NW - HICKORY, NC 28601
P O BOX 3009 - HICKORY, NC 28603
(704) 328-2991
(704) 322-2268 FAX

FOR

HAROLD HALL PROPERTY
JAMESTOWN, NORTH CAROLINA
SOIL AND GROUNDWATER
QUALITY ASSESSMENT REPORT
FEBRUARY 5, 1993

TABLE OF CONTENTS

1.0 Project Information

The subject site is located at 108 West Main Street in Jamestown, North Carolina (See Site Location Map). In June, 1992, seven Underground Storage Tanks (UST) were closed at the former service station owned by Mr. Harold Hall. Chemical analysis of soil samples collected from beneath several of the UST and along the pipe lines to the pump islands indicated the presence of semi-volatile and volatile hydrocarbons in soil at the site.

Engineering and Environmental Services (EES) was contracted to assess groundwater quality at the site and assess the extent of soil contamination. This report describes the work performed, the results and conclusions.

2.0 Soil Test Borings and Monitoring Well Installations

Thirteen soil test borings were drilled at the locations illustrated on the Site Plan (Appendix A). Borings S-1 through S-9 were drilled with 8-inch hollow stem augers to assess the extent of soil contamination at the site. These borings were advanced to a depth of 10 feet or until contaminated soil was observed in the soil cuttings or in the split-spoon samples. Soil samples were collected at 5 feet and at 10 feet with a split-spoon sampler. Representative portions of the soil samples were classified in the field by a geologist. These soil test borings were abandoned by filling with clean soil and/or a neat cement.

Borings MW-1, MW-2 and MW-3 were drilled with a nominally 5-inch air-rotary percussion drill bit to assess the groundwater quality at the subject site. The air-rotary percussion drilling technique was employed to drill these wells because of shallow bedrock noted in some areas of the site.

Soil test borings MW-1, MW-2 and MW-3 were advanced to a depth of 20.0 to 28.0 feet. Boring MW-2a was abandoned because it appeared that it was filled with perched water from the former tank pit and would not provide a true representative sample of groundwater in this area. The proposed well location was offset to MW-2 (see Site Plan). Shallow groundwater monitoring wells were installed in boreholes MW-1, MW-2 and MW-3. The wells consist of 2-inch PVC pipe (schedule 40 with flush-threaded joints) with a section of manufactured well screen with 0.010 inch wide openings at the base of the well.

In each of the wells, washed sand backfill was placed around the outside of the well screen. The sand backfill is used to stabilize the formation and to help yield a less turbid groundwater sample. A 2.0 foot bentonite seal was installed on top of the sand backfill to seal each monitoring well at the desired level. The

boreholes were then grouted to the ground surface and concrete pads were installed around a flush mounted steel well vault. Monitoring well diagrams, boring logs and the Well Construction Records for MW-1, MW-2 and MW-3 are included in Appendix B.

Horizontal locations of the monitoring wells were identified by measuring with a tape and estimating right angles, referencing the on-site building. Approximate elevations of the top of the well casings were measured with a level and rod, referencing the top of casing in well MW-1 and assigning that point an elevation of 100.00 feet.

Water level measurements were made at each well on January 19, 1993. Water levels were obtained using a decontaminated electronic water level meter. Groundwater elevations were computed using the water depths measured from the top of riser pipe at each well and their reference elevations. The groundwater elevation data is presented in Table 1 and the apparent direction of groundwater flow is illustrated on the Groundwater Contour Map. Table 1 and the Groundwater Contour Map are included in Appendix A.

To minimize the potential for cross-contamination, drilling tools and soil sampling equipment were decontaminated between soil sample collections and between each boring. The drilling tools and soil sampling equipment were cleaned with a steam pressure wash. Clean latex gloves were used for each sampling event.

3.0 Sampling and Chemical Analysis

Borings S-1, S-3 and S-4 were abandoned when contaminated soil was encountered in the soil cuttings and/or the split-spoon samples. Soil samples were collected from the bottom of soil test borings S-1, S-2 and S-5 through S-9. The soil samples were placed in laboratory cleaned sample jars with Teflon lined lids. Samples were chilled and stored under refrigeration until being delivered to the lab. Chain of Custody was initiated and accompanied the samples to Blue Ridge Labs, Inc. of Lenoir, North Carolina for analysis. These soil samples were analyzed for volatile and semi-volatile Total Petroleum as Hydrocarbons (TPH) using EPA Methods 5030 and 3550. The laboratory reports and Chain of Custody are presented in Appendix B.

Monitoring wells MW-1, MW-2 and MW-3 were developed to allow the formation around the screened interval to recover from the effects of drilling and to bring fresh formation water into the wells. The monitoring wells were

developed by bailing at least six well volumes of water from each well with laboratory cleaned, high density polyethylene bailers and new polypropylene rope.

The groundwater samples obtained from the monitoring wells on January 19, 1993, were labeled and chilled, and Chain of Custody was initiated. The groundwater samples were analyzed by Blue Ridge Labs, Inc. for purgeable aromatics and halocarbons (EPA Methods 601 and 602), and polynuclear aromatic hydrocarbons (EPA Methods 610). The laboratory reports and the Chain of Custody are presented in Appendix B.

4.0 Results and Recommendations

Petroleum as hydrocarbons was not detected above North Carolina Division of Environmental Management (DEM) action limits of 10 ppm in soil samples collected from Borings S-2 and S-5 through S-9. It appears that the contaminated soil was excavated from the tank pit on the north side of the service station. Contaminated soil remains in the area of the tank pit to the south of the building and appears to extend across the front of the facility to the pump islands (see Map of Affected Soils). The results of the chemical analysis performed on the soil samples are presented in Table 2. The extent of soil contamination has not been delineated to the southeast of this area and reportedly extends onto the adjacent property.

Mr. Hall stated that two properties to the northeast of the site (presently the dry cleaners and an unoccupied property) were formerly gasoline stations. Mr. Hall remembers that at least one of the UST at the former gasoline station adjacent to the subject site (presently the dry cleaners) was discovered to have been leaking during the closure of those UST. The former tanks were located directly upgradient from the subject site and the approximate location of the tank pit is illustrated on the Map of Affected Soils.

Based on groundwater elevations measured on January 19, 1993, the direction of groundwater flow at the site is toward the south. A Groundwater Contour Map is included in Appendix A. Chemical analysis of the groundwater samples collected from monitoring wells MW-1, MW-2 and MW-3 indicated that groundwater at the site contains dissolved petroleum constituents above North Carolina DEM Water Quality Standards applicable to groundwaters of North Carolina. A Contaminant Isopleth Map and the Groundwater Sample Analytical Results (Table 3) are presented in Appendix A.

Purgeable aromatics were detected in monitoring wells MW-1 and MW-2 at concentrations of 630 and 80 ppb, respectively. These volatile organic compounds are not usually associated with the retail sales of gasoline and diesel fuels.

EES recommends that the remaining contaminated soil be excavated and transported to a treatment facility for remediation. Soil samples should be collected from the excavation to confirm that the contaminated soil has been removed.

EES recommends that a work plan be developed to assess the horizontal and vertical extents of groundwater contamination. Monitoring wells MW-1 and MW-3 should be resampled to confirm the presence of purgeable aromatics. Also, upgradient wells should be installed along the property boundary with the dry cleaning facility to assess the source of the purgeable aromatics.

APPENDIX A

TABLE 1

GROUNDWATER ELEVATION DATA

HAROLD HALL PROPERTY
JAMESTOWN, NORTH CAROLINA

WELL NUMBER	TOP-OF-PIPE (TOP) REFERENCE ELEVATION* (FT)	DEPTH TO WATER FROM TOP (1-19-93)	RELATIVE GROUNDWATER ELEVATION (FT)
MW-1	100.00	10.51	89.49
MW-2	100.98	9.33	91.65
MW-3	102.05	8.51	93.54

NOTE:

Elevations were measured by EES personnel referencing an assumed site datum (TOP at MW-1 equals 100.00 ft.).

Groundwater depth measurements were made from the top of well casing at each well on January 19, 1993.

TABLE 2

SOIL SAMPLE ANALYTICAL RESULTS
HAROLD HALL PROPERTY
JAMESTOWN, NORTH CAROLINA

SAMPLE LOCATION	SAMPLE NUMBER	DEPTH (FEET)	TPH-5030 (PPM)	TPH-3550 (PPM)
S-1	92095-11593-S1	10	141	224
S-2	92095-11593-S2	10	ND	3.5
S-5	92095-11593-S5	10	ND	1.7
S-6	92095-11593-S6	10	ND	1.4
S-7	92095-11593-S7	10	ND	2.4
S-8	92095-11593-S8	10	ND	1.4
S-9	92095-11593-S9	10	ND	1.7

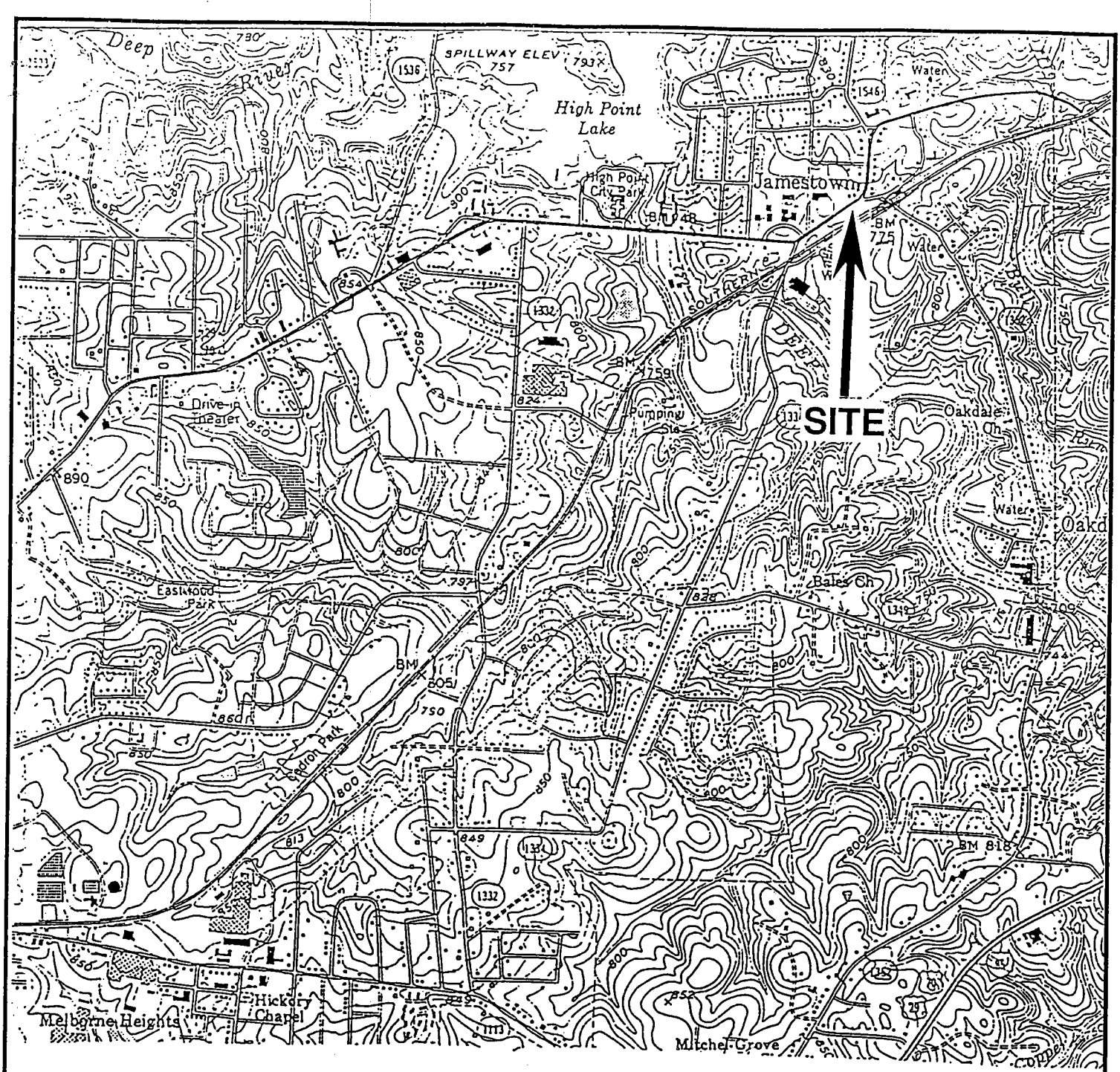
NOTE: ND = Not detected at or above minimum quantification limits.

TABLE 3

GROUNDWATER SAMPLE ANALYTICAL RESULTS
HAROLD HALL PROPERTY
JAMESTOWN, NORTH CAROLINA

CONSTITUENT DETECTED (ppb)	MW-1	MW-2	MW-3	NC DEM STANDARDS
BROMOMETHANE	1.3	ND	ND	---
CHLOROETHANE	1.3	ND	ND	---
CHLOROMETHANE	23.8	ND	ND	---
DICHLORODIFLUORO-METHANE	23.8	ND	ND	.19
1,2-DICHLOROETHANE	1.6	ND	ND	.38
1,1-DICHLOROETHANE	0.5	ND	ND	7
TETRACHLOROETHENE	527	ND	80.0	.7
TRICHLOROETHENE	49.4	ND	ND	2.8
VINYL CHLORIDE	1.3	ND	ND	.015
BENZENE	5.2	1177	1.2	1
ETHYL BENZENE	0.7	172	ND	29
TOLUENE	0.9	978	ND	1000
XYLENES	1.8	891	0.9	400
ACENAPHTHENE	19	ND	18	---
ACENAPHTHYLENE	ND	ND	31	---
ANTHRACENE	8	ND	8	---
FLUOANTHENE	5	ND	10	---
FLUORENE	8	ND	17	---
NAPHTHALENE	ND	18	ND	---
PHENATHRENE	8	ND	13	---
PYRENE	ND	ND	5	---

NOTE: ND = Not detected at or above minimum quantification limits.
--- = NC DEM has not set Groundwater Quality Standard maximum limits for these constituents. Constituents without set limits shall not be permitted in detectable concentractions in Class GA or GSA groundwaters.



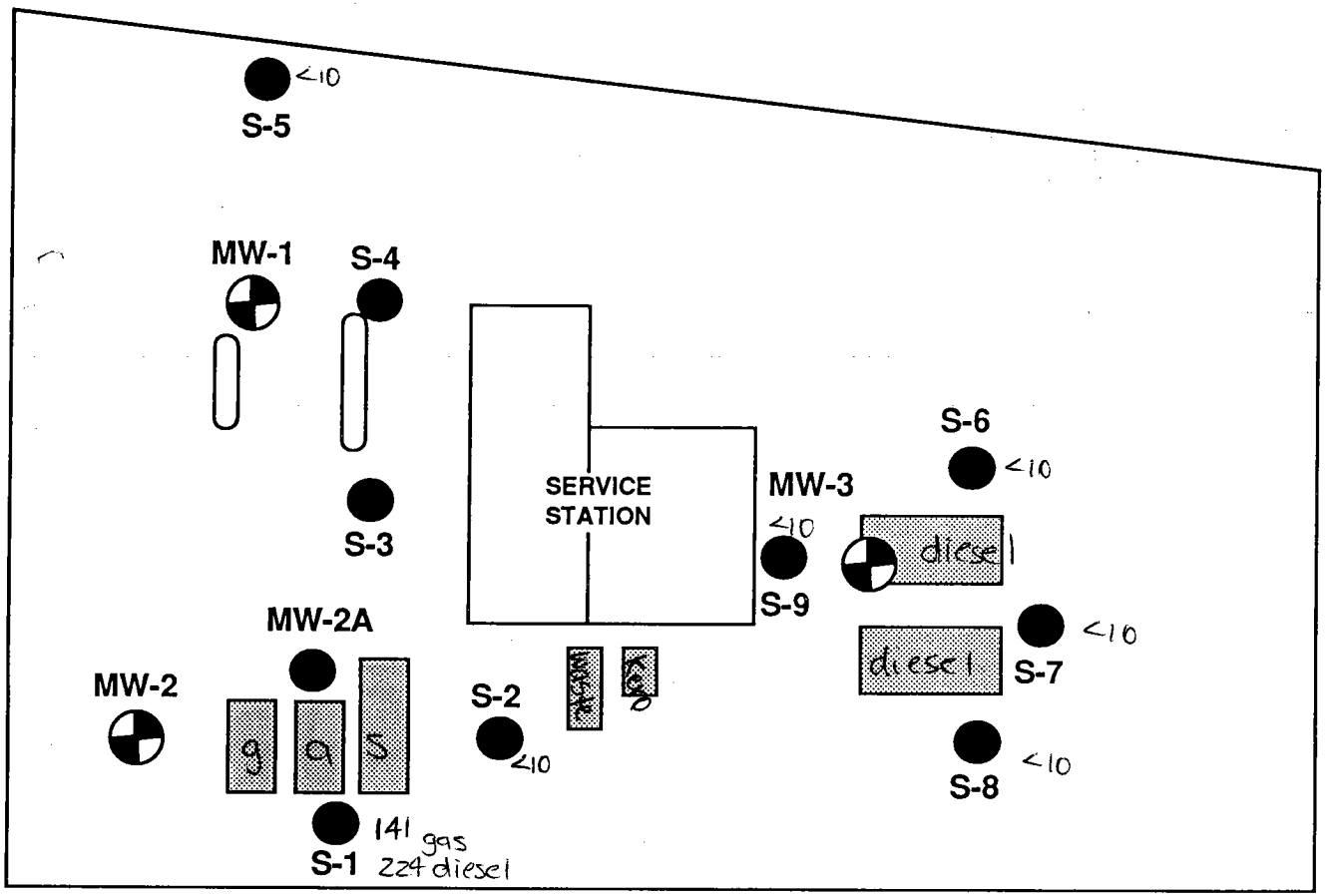
0 2000
FEET

NORTH

ENGINEERING AND ENVIRONMENTAL SERVICES
PO BOX 3009 HICKORY, NC 28603 (704)3282991

HAROLD HALL PROPERTY
JAMESTOWN, NORTH CAROLINA

DATE	SCALE	SITE LOCATION MAP
11/24/92	1"=2000'	
REV 0	APPROVAL RTB	REF.: U.S.G.S.- 7.5 MINUTE TOPOGRAPHIC MAP



APPROX. NORTH

0 40

FEET

-- MONITORING WELL LOCATION

-- BORING LOCATION

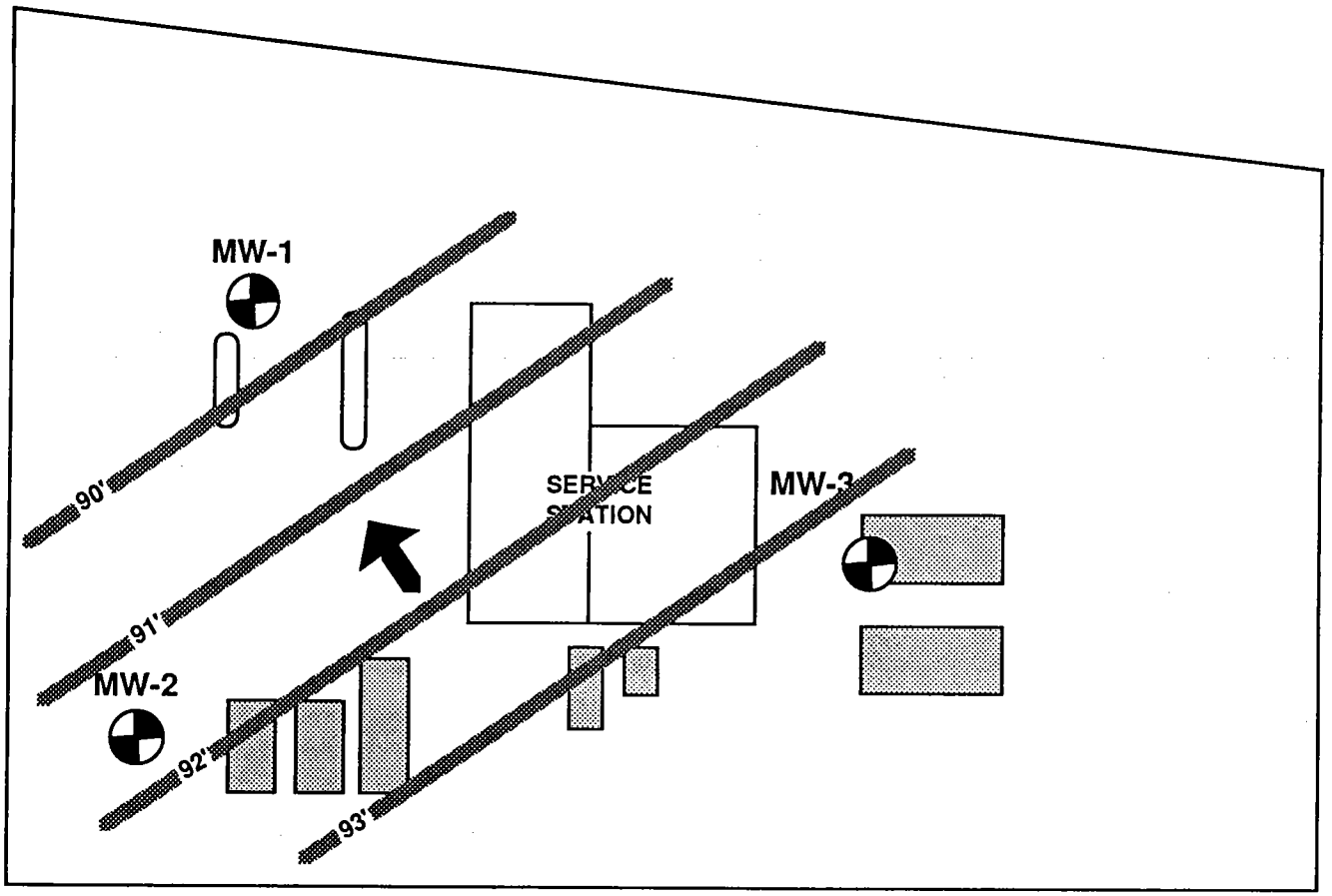
-- FORMER UST LOCATION

ENGINEERING AND ENVIRONMENTAL SERVICES

PO BOX 3009 HICKORY, NC 28603 (704)3282991

HAROLD HALL PROPERTY
JAMESTOWN, NORTH CAROLINA

DATE	SCALE	APPROVAL	SITE PLAN
1/22/93	1"=40'	RTB	
REV 0	DRAWING NO. 92-095-0003		



0 40
FEET

-- MONITORING WELL LOCATION

91' -- GROUNDWATER ELEVATION CONTOUR

-- GENERAL GROUNDWATER FLOW DIRECTION

-- FORMER UST LOCATION

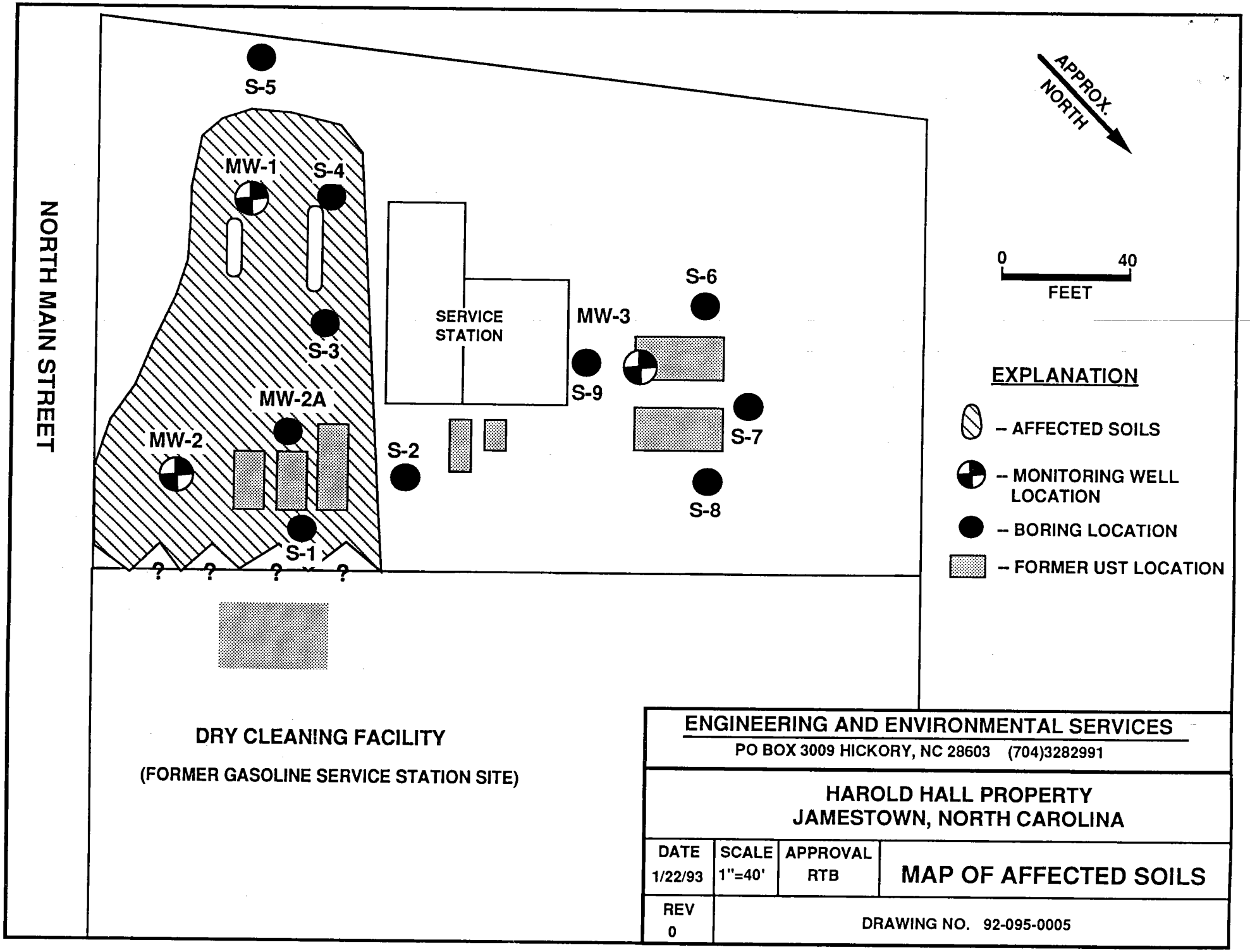
APPROX. NORTH

ENGINEERING AND ENVIRONMENTAL SERVICES

PO BOX 3009 HICKORY, NC 28603 (704)3282991

HAROLD HALL PROPERTY
JAMESTOWN, NORTH CAROLINA

DATE	SCALE	APPROVAL	GROUNDWATER CONTOUR MAP
1/22/93	1"=40'	RTB	
REV 0	DRAWING NO. 92-095-0004		



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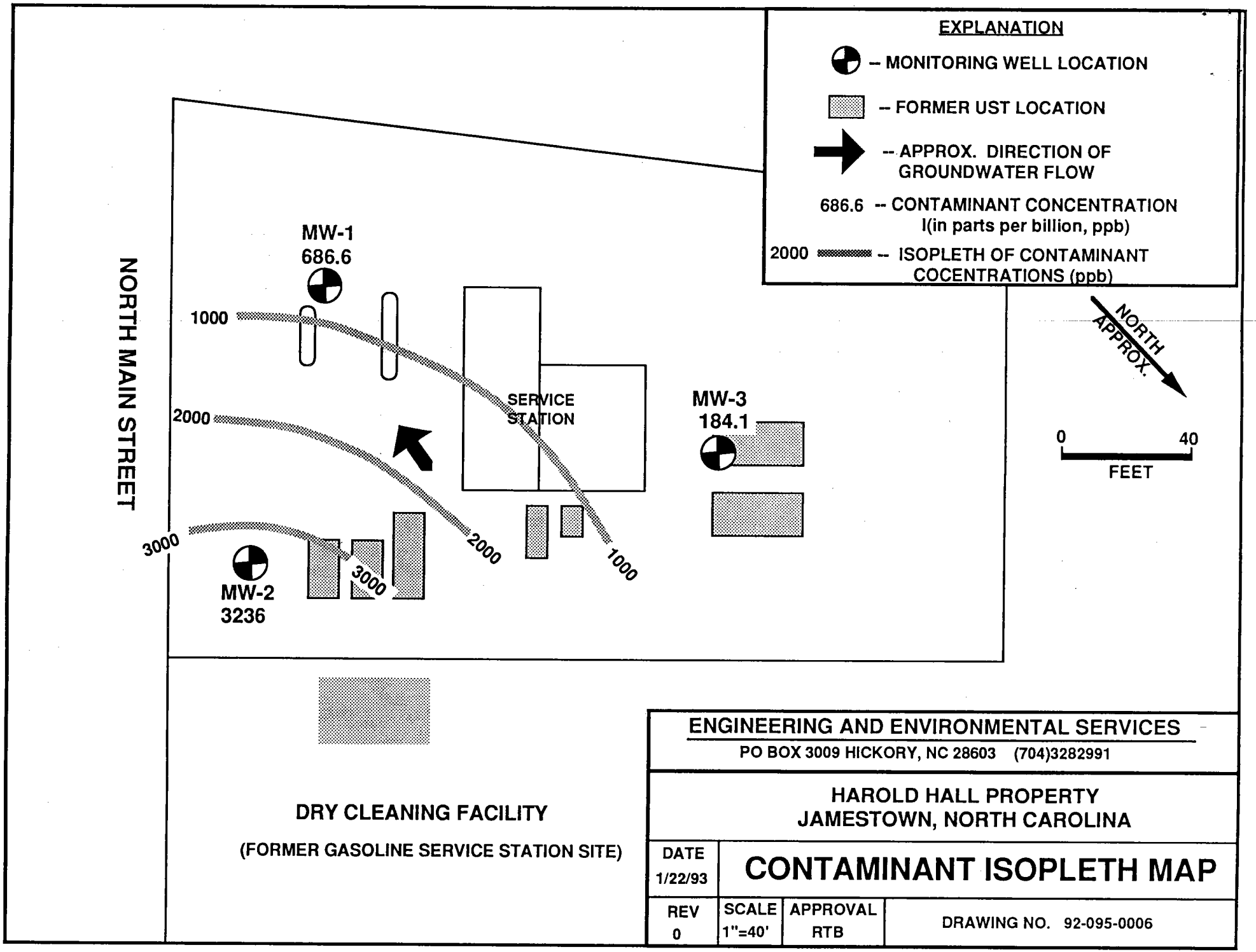
PO BOX 3009 HICKORY, NC 28603 (704)3282991

HAROLD HALL PROPERTY
JAMESTOWN, NORTH CAROLINA

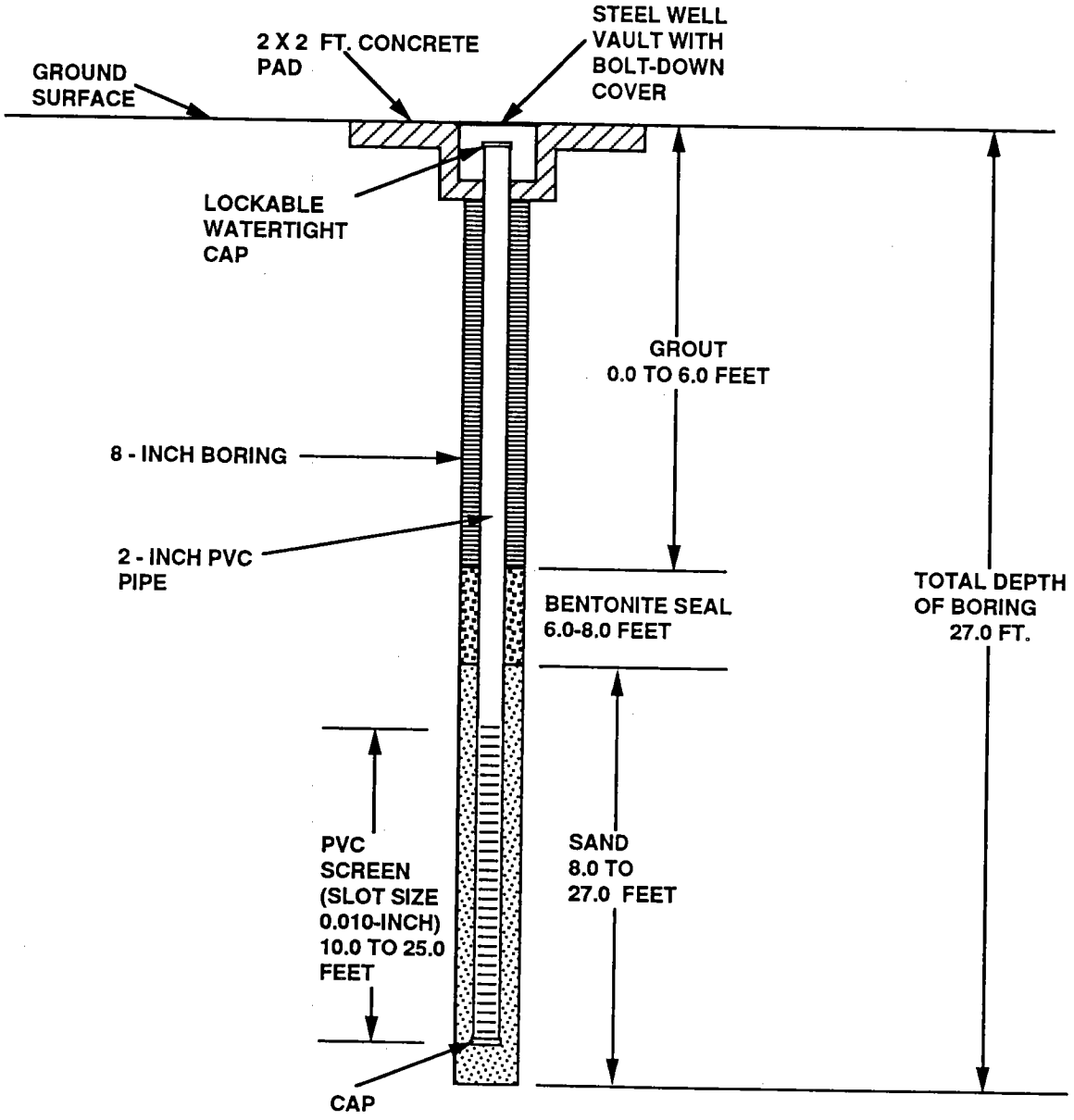
DATE	SCALE	APPROVAL	MAP OF AFFECTED SOILS
1/22/93	1"=40'	RTB	
REV 0	DRAWING NO. 92-095-0005		


EXPLANATION
-- MONITORING WELL LOCATION
-- FORMER UST LOCATION
-- APPROX. DIRECTION OF GROUNDWATER FLOW
686.6 -- CONTAMINANT CONCENTRATION I(in parts per billion, ppb)
2000 -- ISOPLETH OF CONTAMINANT COCENTRATIONS (ppb)
NORTH APPROX.
0
40
FEET
NORTH MAIN STREET
MW-1
686.6
1000
2000
3000
SERVICE STATION
MW-3
184.1
MW-2
3236
DRY CLEANING FACILITY
(FORMER GASOLINE SERVICE STATION SITE)
ENGINEERING AND ENVIRONMENTAL SERVICES
PO BOX 3009 HICKORY, NC 28603 (704)3282991
HAROLD HALL PROPERTY
JAMESTOWN, NORTH CAROLINA
DATE 1/22/93
CONTAMINANT ISOPLETH MAP
REV 0
SCALE 1"=40'
APPROVAL RTB
DRAWING NO. 92-095-0006

APPENDIX B

MONITORING WELL DIAGRAM

INSTALLATION DATE 1-14-93 WELL NUMBER MW-1



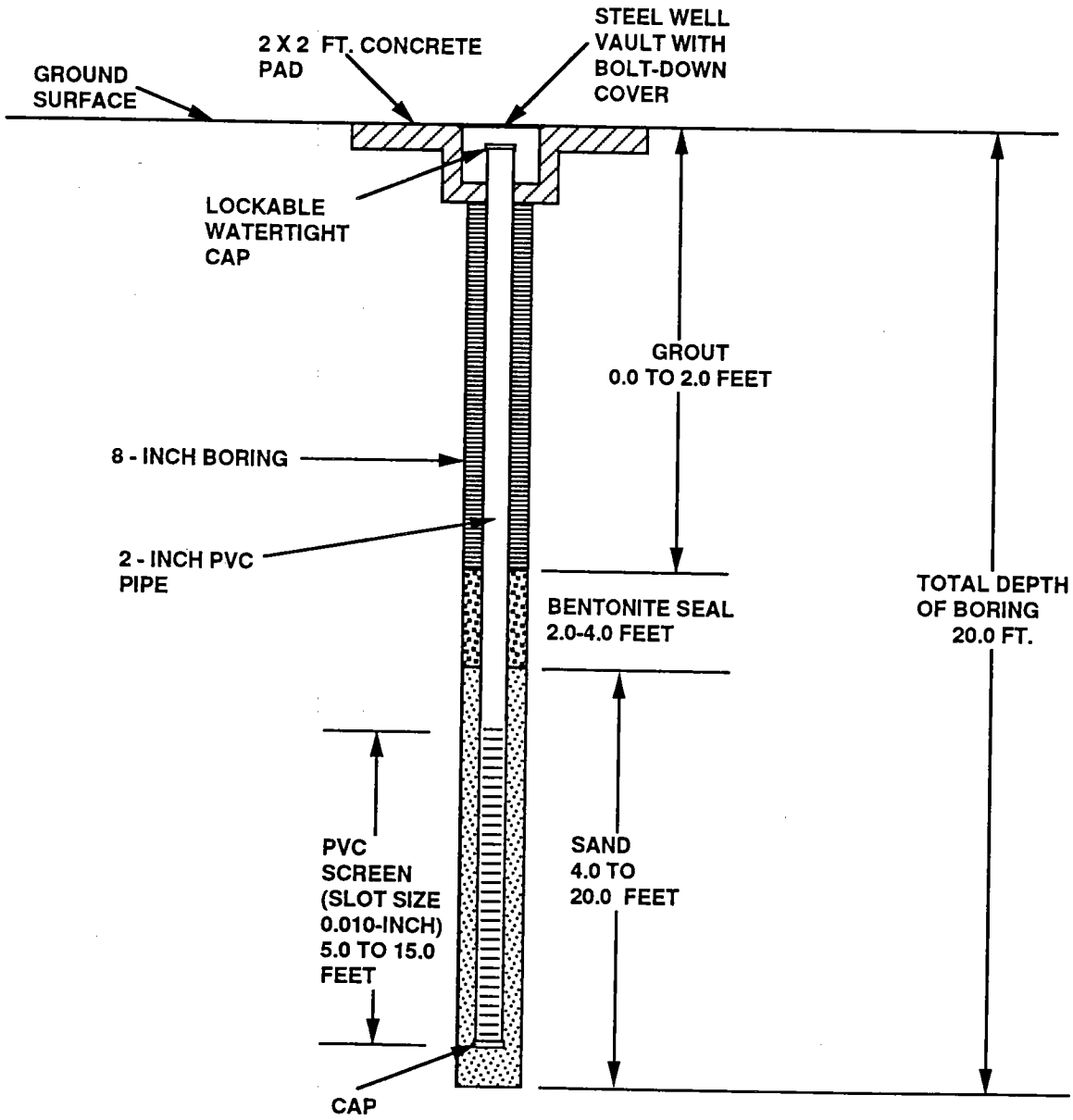
ENGINEERING AND ENVIRONMENTAL SERVICES
PO BOX 3009 HICKORY, NC 28603 (704) 328-2991

HAROLD HALL PROPERTY
JAMESTOWN, NC

DATE	NOT TO SCALE	APPROVAL	REV	DRAWING NO.
1/21/93		RTB	0	92-095-0007

MONITORING WELL DIAGRAM

INSTALLATION DATE 1-14-93 WELL NUMBER MW-2



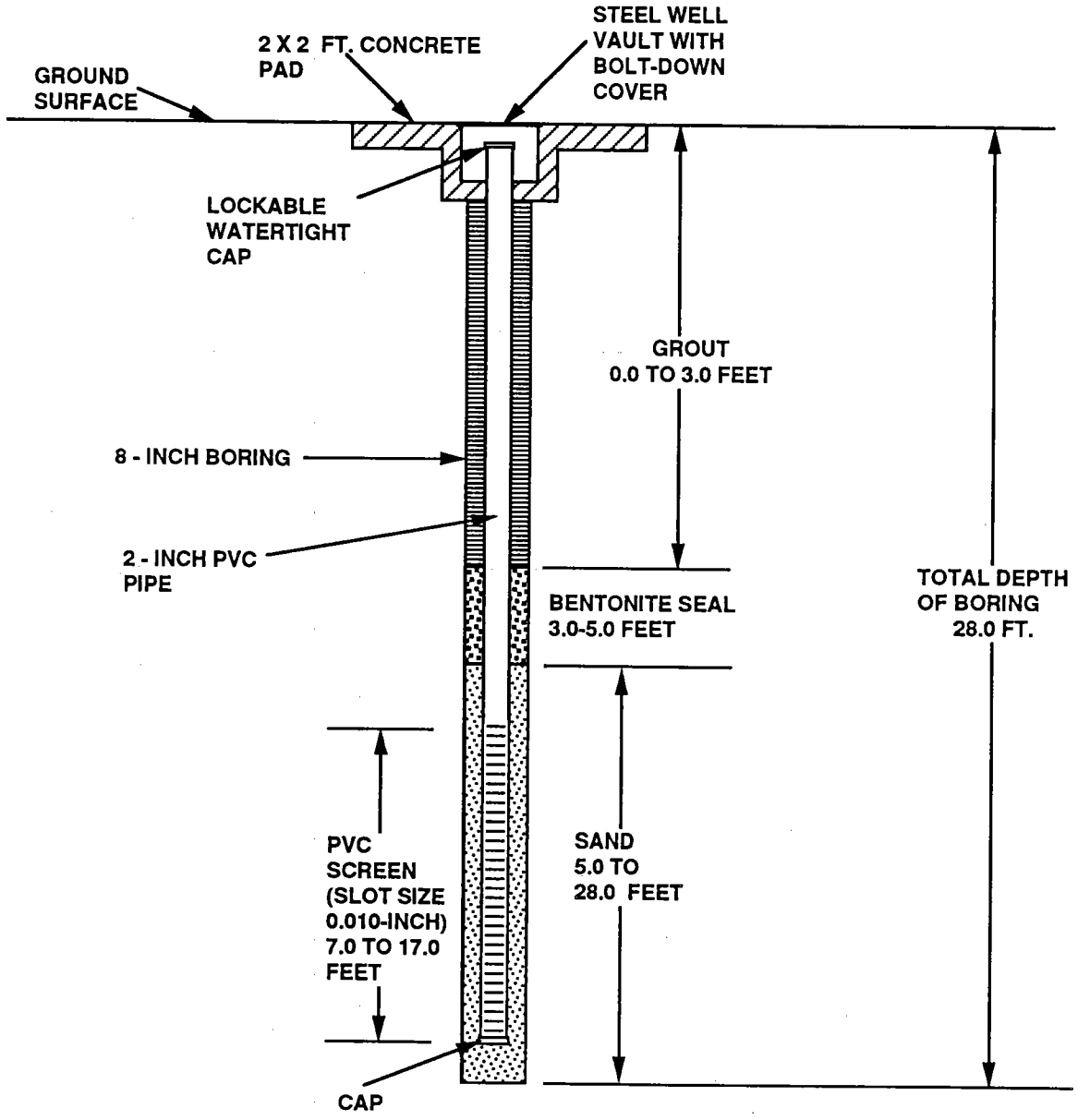
ENGINEERING AND ENVIRONMENTAL SERVICES
PO BOX 3009 HICKORY, NC 28603 (704) 328-2991

HAROLD HALL PROPERTY
JAMESTOWN, NC

DATE	NOT TO SCALE	APPROVAL	REV	DRAWING NO.
1/21/93		RTB	0	92-095-0008

MONITORING WELL DIAGRAM

INSTALLATION DATE 1-14-93 WELL NUMBER MW-3



ENGINEERING AND ENVIRONMENTAL SERVICES
PO BOX 3009 HICKORY, NC 28603 (704) 328-2991

HAROLD HALL PROPERTY
JAMESTOWN, NC

DATE	NOT TO SCALE	APPROVAL	REV	DRAWING NO.
1/21/93		RTB	0	92-095-0009

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. _____ SERIAL NO. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent.

WELL CONSTRUCTION RECORD MW-1

DRILLING CONTRACTOR: Engineering Techtonics

DRILLER REGISTRATION NUMBER: 835

STATE WELL CONSTRUCTION PERMIT NUMBER: 40-1076-WM-0502

1. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Jamestown County: Guilford
   108 West Main Street
   (Road, Community, or Subdivision and Lot No.)
2. OWNER James Hall
   ADDRESS P O Box 396
   (Street or Route No.)
   Jamestown, NC 27292
   City or Town State Zip Code
3. DATE DRILLED 1/14/93 USE OF WELL Monitoring
4. TOTAL DEPTH 27.0 feet
5. CUTTINGS COLLECTED YES [ ] NO [X]
6. DOES WELL REPLACE EXISTING WELL? YES [ ] NO [X]
7. STATIC WATER LEVEL Below Top of Casing: 10.51 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -.12 FT. Above Land Surface*

* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): - METHOD OF TEST -
10. WATER ZONES (depth): -
11. CHLORINATION: Type - Amount -
12. CASING:

	Depth		Diameter	Wall Thickness or Weight/Ft.	Material
From 0	To 10.0	Ft.	2 inch	Sched. 40	PVC
From	To	Ft.			
From	To	Ft.			

13. GROUT:

	Depth		Material	Method
From 0	To 6.0	Ft.	Neat Cement	other
From	To	Ft.		

14. SCREEN:

	Depth		Diameter		Slot Size		Material
From 10.0	To 25.0	Ft	2.0	in.	0.01	in.	Sched. 40 PVC
From	To	Ft.		in.		in.	
From	To	Ft.		in.		in.	

15. SAND/GRAVEL PACK:

	Depth		Size	Material
From 8.0	To 27.0	Ft.	Meduim	Sand
From	To	Ft.		

16. REMARKS: _____

DEPTH From	To	DRILLING LOG Formation Description
0 -	0.5 feet	Asphalt & Gravel Base
0.5 -	5.0 feet	Soil
5.0 -	13.0 feet	Rock
13.0 -	27.0 feet	Soil

If additional space is needed use back of form

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

See attached Site Location Map

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Kent C Swan 1-29-93
SIGNATURE OF CONTRACTOR OR AGENT DATE

GW-1 REV. 5/91

Submit original to Division of Environmental Management and copy to well owner.

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. _____ SERIAL NO. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent.

WELL CONSTRUCTION RECORD MW-2

DRILLING CONTRACTOR: Engineering Techtonics

DRILLER REGISTRATION NUMBER: 835

STATE WELL CONSTRUCTION PERMIT NUMBER: 40-1076-WM-0502

1. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Jamestown County: Guilford
   108 West Main Street
   (Road, Community, or Subdivision and Lot No.)
2. OWNER Harold E. Hall
   ADDRESS P O Box 396
   (Street or Route No.)
   Jamestown, NC 27292
   City or Town State Zip Code
3. DATE DRILLED 1/14/93 USE OF WELL Monitoring
4. TOTAL DEPTH 20.0 feet
5. CUTTINGS COLLECTED YES [ ] NO [X]
6. DOES WELL REPLACE EXISTING WELL? YES [ ] NO [X]
7. STATIC WATER LEVEL Below Top of Casing: 9.33 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -.22 FT. Above Land Surface*

* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): - METHOD OF TEST -
10. WATER ZONES (depth): -
11. CHLORINATION: Type - Amount -
12. CASING:

	Depth From	To		Diameter	Wall Thickness or Weight/Ft.	Material
From	0	5.0	Ft.	2 inch	Sched. 40	PVC
From			Ft.			
From			Ft.			

13. GROUT:

	Depth From	To		Material	Method
From	0	2.0	Ft.	Neat Cement	other
From			Ft.		

14. SCREEN:

	Depth From	To		Diameter		Slot Size		Material
From	5.0	15.0	Ft	2.0	in.	0.01	in.	Sched. 40 PVC
From			Ft.		in.		in.	
From			Ft.		in.		in.	

15. SAND/GRAVEL PACK:

	Depth From	To		Size	Material
From	4.0	20.0	Ft.	Medium	Sand
From			Ft.		

16. REMARKS: _____

DEPTH From	To	DRILLING LOG Formation Description
0 -	0.5 feet	Asphalt and Gravel
0.5 -	6.0 feet	Soil
6.0 -	8.0 feet	Rock
8.0 -	20.0 feet	Soil

If additional space is needed use back of form

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

See attached Site Location Map

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Kent C Swann 1-29-93

SIGNATURE OF CONTRACTOR OR AGENT DATE

Submit original to Division of Environmental Management and copy to well owner.

GW-1 REV. 5/91

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. _____ SERIAL NO. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent.

WELL CONSTRUCTION RECORD MW-3

DRILLING CONTRACTOR: Engineering Techtonics

DRILLER REGISTRATION NUMBER: 835

STATE WELL CONSTRUCTION PERMIT NUMBER: 40-1076-WM-0502

1. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Jamestown County: Guilford
   108 West Main Street
   (Road, Community, or Subdivision and Lot No.)
2. OWNER James Hall
   ADDRESS P O Box 396
   (Street or Route No.)
   Jamestown, NC 27292
   City or Town State Zip Code
3. DATE DRILLED 1/14/93 USE OF WELL Monitoring
4. TOTAL DEPTH 28.0 feet
5. CUTTINGS COLLECTED YES [ ] NO [X]
6. DOES WELL REPLACE EXISTING WELL? YES [ ] NO [X]
7. STATIC WATER LEVEL Below Top of Casing: 8.51 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -.28 FT. Above Land Surface*

* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): - METHOD OF TEST -
10. WATER ZONES (depth): -
11. CHLORINATION: Type - Amount -
12. CASING:

	Depth From	To	Ft.	Diameter	Wall Thickness or Weight/Ft.	Material
	0	7.0		2 inch	Sched. 40	PVC

13. GROUT:

	Depth From	To	Ft.	Material	Method
	0	3.0		Neat Cement	other

14. SCREEN:

	Depth From	To	Ft.	Diameter		Slot Size		Material
	7.0	17.0		2.0	in.	0.01	in.	Sched. 40 PVC
					in.		in.	
					in.		in.	

15. SAND/GRAVEL PACK:

	Depth From	To	Ft.	Size	Material
	5.0	28.0		Medium	Sand

16. REMARKS: _____

DEPTH From	To	DRILLING LOG Formation Description
0 -	0.5 feet	Soil
8.5 -	14.0 feet	Rock
14.0 -	28.0 feet	Soil

If additional space is needed use back of form

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

See attached Site Location Map

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Kent C. Swan 1-29-93
SIGNATURE OF CONTRACTOR OR AGENT DATE

GW-1 REV. 5/91

Submit original to Division of Environmental Management and copy to well owner.

Blue Ridge Labs
P.O. Box 2940 • Pine Mountain Road
Lenoir, North Carolina 28645
Telephone (704) 728-0149

CLIENT: Engineering and Environmental Services
P.O. Box 3009
Hickory, N.C. 28603

Attention: Mr. R. Bannister

DATE RECEIVED: January 20, 1993

DATE REPORTED: January 29, 1993

SAMPLE NUMBER	SAMPLE DESCRIPTION
301-0135A	Water; #92095-11993- MW1 for 601,602, & 610.

PARAMETER	RESULTS	MQL	DATE ANALYZED
301-0135A - 601			
- Bromodichloromethane	*	0.5 ug/l	1/20/93
- Bromoform	*	5.0 ug/l	1/20/93
- **Bromomethane**	**1.3**	0.5 ug/l	1/20/93
- Carbon Tetrachloride	*	0.5 ug/l	1/20/93
- Chlorobenzene	*	0.5 ug/l	1/20/93
- **Chloroethane**	**1.3**	0.5 ug/l	1/20/93
- 2-Chloroethylvinyl Ether	*	1.0 ug/l	1/20/93
- Chloroform	*	0.5 ug/l	1/20/93
- **Chloromethane**	**23.8**	0.5 ug/l	1/20/93
- Dibromochloromethane	*	0.5 ug/l	1/20/93
- 1,2-Dichlorobenzene	*	0.5 ug/l	1/20/93
- 1,3-Dichlorobenzene	*	1.0 ug/l	1/20/93

* Concentrations are below Minimum Quantification Limit except where noted.

NC Laboratory Certificate No. 275.

PARAMETER	RESULTS	MQL	DATE ANALYZED
301-0135A - 601			
- 1,4-Dichlorobenzene	*	1.0 ug/l	1/20/93
- **Dichlorodifluoromethane**	**23.8**	0.5 ug/l	1/20/93
- 1,1-Dichloroethane	*	0.5 ug/l	1/20/93
- **1,2-Dichloroethane**	**1.6**	0.5 ug/l	1/20/93
- **1,1-Dichloroethene**	**0.5**	0.5 ug/l	1/20/93
- trans-1,2-Dichloroethene	*	0.5 ug/l	1/20/93
- 1,2-Dichloropropane	*	0.5 ug/l	1/20/93
- cis-1,3-Dichloropropene	*	0.5 ug/l	1/20/93
- trans-1,3-Dichloropropene	*	0.5 ug/l	1/20/93
- Methylene Chloride	*	0.5 ug/l	1/20/93
- 1,1,2,2-Tetrachloroethane	*	0.5 ug/l	1/20/93
- **Tetrachloroethene**	**527**	0.5 ug/l	1/20/93
- 1,1,1-Trichloroethane	*	0.5 ug/l	1/20/93
- 1,1,2-Trichloroethane	*	0.5 ug/l	1/20/93
- **Trichloroethene**	**49.4**	0.5 ug/l	1/20/93
- Trichlorofluoromethane	*	0.5 ug/l	1/20/93
- **Vinyl Chloride**	**1.3**	0.5 ug/l	1/20/93

PARAMETER	RESULTS	MQL	DATE ANALYZED
301-0135A - 602			
- **Benzene**	**5.2**	0.5 ug/l	1/20/93
- **Ethyl Benzene**	**0.7**	0.5 ug/l	1/20/93
- **Toluene**	**0.9**	0.5 ug/l	1/20/93
- **Xylenes**	**1.8**	0.5 ug/l	1/20/93

* Concentrations are below Minimum Quantification Limit except where noted.

NC Laboratory Certificate No. 275.

PARAMETER	RESULTS	MQL	DATE ANALYZED
301-0135A 610 (Extracted 1/22/93)			
Acenaphthene	19	5 ug/l	1/27/93
Acenaphthylene	*	5 ug/l	1/27/93
Anthracene	8	5 ug/l	1/27/93
Benzo(a)anthracene	*	5 ug/l	1/27/93
Benzo(b)fluoranthene	*	5 ug/l	1/27/93
Benzo(k)fluoranthene	*	5 ug/l	1/27/93
Benzo(g,i,h)perylene	*	5 ug/l	1/27/93
Benzo(a)pyrene	*	5 ug/l	1/27/93
Chrysene	*	5 ug/l	1/27/93
Dibenzo(a,h)anthracene	*	5 ug/l	1/27/93
Fluoanthene	5	5 ug/l	1/27/93
Fluorene	8	5 ug/l	1/27/93
Indeno(1,2,3-cd)pyrene	*	5 ug/l	1/27/93
Naphthalene	*	5 ug/l	1/27/93
Phenathrene	8	5 ug/l	1/27/93
Pyrene	*	5 ug/l	1/27/93

REPORTED BY: _____

D. R. Wessinger - General Manager

* Concentrations are below Minimum Quantification Limit except where noted.

NC Laboratory Certificate No. 275.

Blue Ridge Labs
P.O. Box 2940 • Pine Mountain Road
Lenoir, North Carolina 28645
Telephone (704) 728-0149

CLIENT: Engineering and Environmental Services
P.O. Box 3009
Hickory, N.C. 28603

Attention: Mr. R. Bannister

DATE RECEIVED: January 20, 1993

DATE REPORTED: January 29, 1993

SAMPLE NUMBER	SAMPLE DESCRIPTION
301-0135B	Water; *92095-11993- MW2 for 601,602, & 610.

PARAMETER	RESULTS	MQL	DATE ANALYZED
301-0135B - 601			
- Bromodichloromethane	*	0.5 ug/l	1/20/93
- Bromoform	*	5.0 ug/l	1/20/93
- Bromomethane	*	0.5 ug/l	1/20/93
- Carbon Tetrachloride	*	0.5 ug/l	1/20/93
- Chlorobenzene	*	0.5 ug/l	1/20/93
- Chloroethane	*	0.5 ug/l	1/20/93
- 2-Chloroethylvinyl Ether	*	1.0 ug/l	1/20/93
- Chloroform	*	0.5 ug/l	1/20/93
- Chloromethane	*	0.5 ug/l	1/20/93
- Dibromochloromethane	*	0.5 ug/l	1/20/93
- 1,2-Dichlorobenzene	*	0.5 ug/l	1/20/93
- 1,3-Dichlorobenzene	*	1.0 ug/l	1/20/93

* Concentrations are below Minimum Quantification Limit except where noted.

NC Laboratory Certificate No. 275.

PARAMETER	RESULTS	MQL	DATE ANALYZED
301-0135B - 601			
- 1,4-Dichlorobenzene	*	1.0 ug/l	1/20/93
- Dichlorodifluoromethane	*	0.5 ug/l	1/20/93
- 1,1-Dichloroethane	*	0.5 ug/l	1/20/93
- 1,2-Dichloroethane	*	0.5 ug/l	1/20/93
- 1,1-Dichloroethene	*	0.5 ug/l	1/20/93
- trans-1,2-Dichloroethene	*	0.5 ug/l	1/20/93
- 1,2-Dichloropropane	*	0.5 ug/l	1/20/93
- cis-1,3-Dichloropropene	*	0.5 ug/l	1/20/93
- trans-1,3-Dichloropropene	*	0.5 ug/l	1/20/93
- Methylene Chloride	*	0.5 ug/l	1/20/93
- 1,1,2,2-Tetrachloroethane	*	0.5 ug/l	1/20/93
- Tetrachloroethene	*	0.5 ug/l	1/20/93
- 1,1,1-Trichloroethane	*	0.5 ug/l	1/20/93
- 1,1,2-Trichloroethane	*	0.5 ug/l	1/20/93
- Trichloroethene	*	0.5 ug/l	1/20/93
- Trichlorofluoromethane	*	0.5 ug/l	1/20/93
- Vinyl Chloride	*	0.5 ug/l	1/20/93

PARAMETER	RESULTS	MQL	DATE ANALYZED
301-0135B - 602			
- **Benzene**	**1177**	0.5 ug/l	1/20/93
- **Ethyl Benzene**	**172**	0.5 ug/l	1/20/93
- **Toluene**	**978**	0.5 ug/l	1/20/93
- **Xylenes**	**891**	0.5 ug/l	1/20/93

* Concentrations are below Minimum Quantification Limit except where noted.

NC Laboratory Certificate No. 275.

PARAMETER	RESULTS	MQL	DATE ANALYZED
301-01356 610 (Extracted 1/22/93)			
Acenaphthene	*	5 ug/l	1/27/93
Acenaphthylene	*	5 ug/l	1/27/93
Anthracene	*	5 ug/l	1/27/93
Benzo(a)anthracene	*	5 ug/l	1/27/93
Benzo(b)fluoranthene	*	5 ug/l	1/27/93
Benzo(k)fluoranthene	*	5 ug/l	1/27/93
Benzo(g,i,h)perylene	*	5 ug/l	1/27/93
Benzo(a)pyrene	*	5 ug/l	1/27/93
Chrysene	*	5 ug/l	1/27/93
Dibenzo(a,h)anthracene	*	5 ug/l	1/27/93
Fluoanthene	*	5 ug/l	1/27/93
Fluorene	*	5 ug/l	1/27/93
Indeno(1,2,3-cd)pyrene	*	5 ug/l	1/27/93
Naphthalene	**18**	5 ug/l	1/27/93
Phenathrene	*	5 ug/l	1/27/93
Pyrene	*	5 ug/l	1/27/93

REPORTED BY: _____

D. R. Wessinger - General Manager

* Concentrations are below Minimum Quantification Limit except where noted.

NC Laboratory Certificate No. 275.

Blue Ridge Labs
P.O. Box 2940 • Pine Mountain Road
Lenoir, North Carolina 28645
Telephone (704) 728-0149

CLIENT: Engineering and Environmental Services
P.O. Box 3009
Hickory, N.C. 28603

Attention: Mr. R. Bannister

DATE RECEIVED: January 20, 1993

DATE REPORTED: January 29, 1993

SAMPLE NUMBER	SAMPLE DESCRIPTION
301-0135C	Water; *92095-11993- MW3 for 601,602, & 610.

PARAMETER	RESULTS	MQL	DATE ANALYZED
301-0135C - 601			
- Bromodichloromethane	*	0.5 ug/l	1/20/93
- Bromoform	*	5.0 ug/l	1/20/93
- Bromomethane	*	0.5 ug/l	1/20/93
- Carbon Tetrachloride	*	0.5 ug/l	1/20/93
- Chlorobenzene	*	0.5 ug/l	1/20/93
- Chloroethane	*	0.5 ug/l	1/20/93
- 2-Chloroethylvinyl Ether	*	1.0 ug/l	1/20/93
- Chloroform	*	0.5 ug/l	1/20/93
- Chloromethane	*	0.5 ug/l	1/20/93
- Dibromochloromethane	*	0.5 ug/l	1/20/93
- 1,2-Dichlorobenzene	*	0.5 ug/l	1/20/93
- 1,3-Dichlorobenzene	*	1.0 ug/l	1/20/93

* Concentrations are below Minimum Quantification Limit except where noted.

NC Laboratory Certificate No. 275.

PARAMETER	RESULTS	MQL	DATE ANALYZED
301-0135C - 601			
- 1,4-Dichlorobenzene	*	1.0 ug/l	1/20/93
- Dichlorodifluoromethane	*	0.5 ug/l	1/20/93
- 1,1-Dichloroethane	*	0.5 ug/l	1/20/93
- 1,2-Dichloroethane	*	0.5 ug/l	1/20/93
- 1,1-Dichloroethene	*	0.5 ug/l	1/20/93
- trans-1,2-Dichloroethene	*	0.5 ug/l	1/20/93
- 1,2-Dichloropropane	*	0.5 ug/l	1/20/93
- cis-1,3-Dichloropropene	*	0.5 ug/l	1/20/93
- trans-1,3-Dichloropropene	*	0.5 ug/l	1/20/93
- Methylene Chloride	*	0.5 ug/l	1/20/93
- 1,1,2,2-Tetrachloroethane	*	0.5 ug/l	1/20/93
- **Tetrachloroethene**	**80.0**	0.5 ug/l	1/20/93
- 1,1,1-Trichloroethane	*	0.5 ug/l	1/20/93
- 1,1,2-Trichloroethane	*	0.5 ug/l	1/20/93
- Trichloroethene	*	0.5 ug/l	1/20/93
- Trichlorofluoromethane	*	0.5 ug/l	1/20/93
- Vinyl Chloride	*	0.5 ug/l	1/20/93

PARAMETER	RESULTS	MQL	DATE ANALYZED
301-0135C - 602			
- **Benzene**	**1.2**	0.5 ug/l	1/20/93
- Ethyl Benzene	*	0.5 ug/l	1/20/93
- Toluene	*	0.5 ug/l	1/20/93
- **Xylenes**	**0.9**	0.5 ug/l	1/20/93

* Concentrations are below Minimum Quantification Limit except where noted.

NC Laboratory Certificate No. 275.

PARAMETER	RESULTS	MQL	DATE ANALYZED
301-0135C 610 (Extracted 1/22/93)			
Acenaphthene	**18**	5 ug/l	1/27/93
Acenaphthylene	**31**	5 ug/l	1/27/93
Anthracene	**8**	5 ug/l	1/27/93
Benzo(a)anthracene	*	5 ug/l	1/27/93
Benzo(b)fluoranthene	*	5 ug/l	1/27/93
Benzo(k)fluoranthene	*	5 ug/l	1/27/93
Benzo(g,i,h)perylene	*	5 ug/l	1/27/93
Benzo(a)pyrene	*	5 ug/l	1/27/93
Chrysene	*	5 ug/l	1/27/93
Dibenzo(a,h)anthracene	*	5 ug/l	1/27/93
Fluoanthene	**10**	5 ug/l	1/27/93
Fluorene	**17**	5 ug/l	1/27/93
Indeno(1,2,3-cd)pyrene	*	5 ug/l	1/27/93
Naphthalene	*	5 ug/l	1/27/93
Phenathrene	**13**	5 ug/l	1/27/93
Pyrene	**5**	5 ug/l	1/27/93

REPORTED BY: _____

D. R. Wessinger - General Manager

* Concentrations are below Minimum Quantification Limit except where noted.

NC Laboratory Certificate No. 275.

ENGINEERING AND ENVIRONMENTAL SERVICES
P O BOX 3009
(704) 328-2991
HICKORY, NC 28603
FAX (704) 322-2268

CHAIN OF CUSTODY 301-0135

PO# 931012 DATE 1-20-93

LAB RECEIVING BLUE RIDGE LABS

SAMPLE # 92095-11993-MW1
DESCRIPTION Water
3-jars
LOCATION MW-1
DATE 1-1993 TIME 2:10
PROCESS 601, 602, 610
PRESERVATIVE chill to 4°C
SAMPLED BY KCS/PRD

SAMPLE #
DESCRIPTION
LOCATION
DATE TIME
PROCESS
PRESERVATIVE
SAMPLED BY

SAMPLE # 92095-11993-MW2
DESCRIPTION Water
3-Jars
LOCATION MW-2
DATE 1-19-93 TIME 1:50
PROCESS 601, 602, 610
PRESERVATIVE chill to 4°C
SAMPLED BY KCS/PRD

SAMPLE #
DESCRIPTION
LOCATION
DATE TIME
PROCESS
PRESERVATIVE
SAMPLED BY

SAMPLE # 92095-11993-MW3
DESCRIPTION WATER
3-Jars
LOCATION MW-3
DATE 1-19-93 TIME 2:30
PROCESS 601, 602, 610
PRESERVATIVE chill to 4°C
SAMPLED BY KCS/PRD

SAMPLE #
DESCRIPTION
LOCATION
DATE TIME
PROCESS
PRESERVATIVE
SAMPLED BY

RELINQUISHED BY	TIME/DATE	RELINQUISHED TO
Keat C. S[illegible]	4:30 / 1-20-93	[illegible signature]

Blue Ridge Labs
P.O. Box 2940 • Pine Mountain Road
Lenoir, North Carolina 28645
Telephone (704) 728-0149

CLIENT: Engineering and Environmental Services
P.O. Box 3009
Hickory, N.C. 28603

Attention: Mr. R. Bannister

DATE RECEIVED: January 20, 1993
DATE REPORTED: January 22, 1993
DATE REISSUED: January 29, 1993 **

SAMPLE NUMBER	SAMPLE DESCRIPTION
301-0133A	Soil; 92095-11593- S1 for 5030 & 3550.
301-0133B	Soil; 92095-11593- S2 for 5030 & 3550.
301-0133C	Soil; 92095-11593- S5 for 5030 & 3550.
301-0133D	Soil; 92095-11593- S6 for 5030 & 3550.
301-0133E	Soil; 92095-11593- S7 for 5030 & 3550.
301-0133F	Soil; 92095-11593- S8 for 5030 & 3550.
301-0133G	Soil; 92095-11593- S9 for 5030 & 3550.

PARAMETER	RESULTS	MQL		DATE STARTED
301-0133A - 5030	141	1.0	mg/kg	1/20/93
- 3550	224	1.0	mg/kg	1/20/93
301-0133B - 5030	*	1.0	mg/kg	1/20/93
- 3550	3.5	1.0	mg/kg	1/20/93
301-0133C - 5030	*	1.0	mg/kg	1/20/93
- 3550	1.7	1.0	mg/kg	1/20/93

**** NOTE: Re-issued due to typeographic error.**

* Concentrations are below Minimum Quantification Limit except where noted.

NC Laboratory Certificate No. 275.

PARAMETER	RESULTS	MQL		DATE STARTED
301-0133D - 5030	*	1.0	mg/kg	1/20/93
- 3550	1.4	1.0	mg/kg	1/20/93
301-0133E - 5030	*	1.0	mg/kg	1/20/93
- 3550	2.4	1.0	mg/kg	1/20/93
301-0133F - 5030	*	1.0	mg/kg	1/20/93
- 3550	1.4	1.0	mg/kg	1/20/93
301-0133G - 5030	*	1.0	mg/kg	1/20/93
- 3550	1.7	1.0	mg/kg	1/20/93

REPORTED BY: _____

D. R. Wessinger - General Manager

* Concentrations are below Minimum Quantification Limit except where noted.

NC Laboratory Certificate No. 275.

ENGINEERING AND ENVIRONMENTAL SERVICES

P O BOX 3009
(704) 328-2991

HICKORY, NC 28603
FAX (704) 322-2268

CHAIN OF CUSTODY

PO# 931013 DATE 1-20-93 301-0133

LAB RECEIVING BLUE RIDGE LABS

SAMPLE # 92095-11593-51
DESCRIPTION Soil

LOCATION S-1
DATE 1-15-93 TIME 900
PROCESS 3550/5030
PRESERVATIVE chill to 4°C
SAMPLED BY PRD

SAMPLE # 92095-11593-52
DESCRIPTION Soil

LOCATION S-2
DATE 1-15-93 TIME 930
PROCESS 3550/5030
PRESERVATIVE chill 4°C
SAMPLED BY PRD

SAMPLE # 92095-11593-55
DESCRIPTION Soil

LOCATION S-5
DATE 1-15-93 TIME 10:00
PROCESS 5030/3550
PRESERVATIVE chill-4°C
SAMPLED BY PRD

SAMPLE # 92095-11593-57
DESCRIPTION Soil

LOCATION S-7
DATE 1-15-93 TIME 10:30
PROCESS 3550/5030
PRESERVATIVE chill to 4°C
SAMPLED BY PRD

SAMPLE # 92095-11593-58
DESCRIPTION Soil

LOCATION S-8
DATE 1-15-93 TIME 11:30
PROCESS 3550/5030
PRESERVATIVE
SAMPLED BY

SAMPLE # 92095-11593-56
DESCRIPTION Soil

LOCATION S-6
DATE 1-15-93 TIME 11:00
PROCESS 5030/3550
PRESERVATIVE chill-4°C
SAMPLED BY PRD

RELINQUISHED BY	TIME/DATE	RELINQUISHED TO
[signature]	4:30 / 1-20-93	[signature]

ENGINEERING AND ENVIRONMENTAL SERVICES
P O BOX 3009
(704) 328-2991
HICKORY, NC 28603
FAX (704) 322-2268

CHAIN OF CUSTODY

PO# 931013 DATE 1-20-93

LAB RECEIVING BLUE RIDGE LABS

SAMPLE # 92095-11593-59
DESCRIPTION Soil

LOCATION S-9
DATE 1-15-93 TIME 1200
PROCESS 3550/5030
PRESERVATIVE chill 4°C
SAMPLED BY CRD

SAMPLE #
DESCRIPTION

LOCATION
DATE TIME
PROCESS
PRESERVATIVE
SAMPLED BY

SAMPLE #
DESCRIPTION

LOCATION
DATE TIME
PROCESS
PRESERVATIVE
SAMPLED BY

SAMPLE #
DESCRIPTION

LOCATION
DATE TIME
PROCESS
PRESERVATIVE
SAMPLED BY

SAMPLE #
DESCRIPTION

LOCATION
DATE TIME
PROCESS
PRESERVATIVE
SAMPLED BY

SAMPLE #
DESCRIPTION

LOCATION
DATE TIME
PROCESS
PRESERVATIVE
SAMPLED BY

RELINQUISHED BY	TIME/DATE	RELINQUISHED TO
[signature]	4:30 1-20-93	[signature]